

What Is Claimed Is:

*Stet 5*

10 An electronic module for live connection with a computer system, comprising:  
a power line for receiving power from the computer system;  
a ground line;  
an input/output line; and  
a switch element coupled to said power line and said ground line, wherein said switch element disables said power line until said ground line is coupled to a ground of the computer system.

15 2. The electronic module of claim 1, further comprising:  
a power connector for coupling said power line to the computer system;  
a ground connector for coupling said ground line to the computer system;  
and  
an input/output connector for coupling said input/output line to the computer system;  
wherein said connectors have substantially uniform lengths.

20 3. The electronic module of claim 2, wherein said switch element is a solid-state switch comprising:  
a first source coupled to said power connector;  
a first gate coupled to said ground line; and  
a first drain;  
wherein the solid-state switch is non-conducting until said ground line is coupled to a ground reference of the computer system.

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4. An electronic module with non-staggered connectors, comprising:  
a power connector configured to couple a first internal circuit of the  
electronic module to an interface power source;  
a ground connector configured to couple a ground line of the electronic  
module to the interface; and  
5 a switch configured to electrically isolate said first internal circuit until  
said ground connector is coupled to the interface;  
wherein each of said power connector and said ground connector are of  
substantially uniform lengths.

10 5. The electronic module of claim 4, further comprising:  
an input/output connector configured to couple an input/output line of the  
electronic module to the interface;  
wherein said input/output connector is of said uniform length.

15 6. The electronic module of claim 4, further comprising:  
a logic voltage connector configured to couple a second internal circuit of  
the electronic module to the interface;  
wherein said logic voltage connector is of said uniform length.

20 7. A hot-swappable electronic module having electrical connectors of  
non-staggered lengths, comprising:  
a first load requiring a first voltage;  
a first power connector configured to couple said first load to a first power  
25 interface;  
a ground;  
a ground connector configured to couple said ground to a ground interface;

wherein equal lengths of said first power connector and said ground connector are coupleable to said first power interface and said ground interface.

8. The hot-swappable electronic module of claim 7, further  
5 comprising:  
an input/output line; and  
an input/output connector configured to couple said input/output line to an external circuit interface;  
wherein said input/output connector is coupleable to said external circuit  
10 interface along a length equal to said equal length.

9. The hot-swappable electronic module of claim 7, further  
comprising:  
a second load requiring a second voltage;  
15 a second power connector configured to couple said second load to a second power interface;  
wherein said second power connector is coupleable to said second power interface along a length equal to said equal length.

20 10. The hot-swappable electronic module of claim 9, wherein said second power interface is a Vcc source.

11. An apparatus for ensuring multiple electrical connections are completed to an interface module in a predetermined order, comprising:  
25 a gate configured to be coupled to a ground reference of the interface module;  
a source configured to be coupled to a voltage source of the interface

module; and

a drain coupled to a load;

wherein the apparatus is non-conducting, and said drain is isolated from said source, until said gate is coupled to the ground reference.

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12. A computing device, comprising:

a processor;

a memory; and

a hot swappable component, comprising:

10 a power input configured to receive power from the computing device through a power connector;

a ground configured to receive a ground reference from the computing device through a ground connector; and

15 a switch configured to isolate said power input from a component load until said ground is coupled to the ground reference.

13. The computing device of claim 12, wherein said power connector and said ground connector are of substantially identical lengths.

20 14. The computing device of claim 12, wherein the hot swappable component further comprises:

an input/output line configured to provide information from the component to the computing device through an input/output connector;

25 wherein said power connector, said ground connector, and said input/output connector are of substantially identical lengths.

15. The computing device of claim 12, wherein the hot swappable

component further comprises:

a logic voltage input configured to receive logic voltage from the computing device through a logic voltage connector;  
wherein said power connector, said ground connector, and said logic voltage connector are of substantially identical lengths.

16. The computing device of claim 12, wherein said switch is a field effect transistor comprising:

a gate configured to be coupled to the ground reference;  
10 a source configured to be coupled to the power input; and  
a drain coupled to the component load;  
wherein said field effect transistor is non-conducting until said gate is coupled to the ground reference.

15 17. A method of connecting a hot swappable module to an interface of a computing device, comprising:

receiving a first voltage from the computing device through a first voltage connector of the module;  
receiving a ground reference from the computing device through a ground connector of the module;  
20 until said ground reference is received, isolating said first voltage connector from a load of the module; and  
when said ground reference is received, enabling electrical conductivity between said first voltage connector and the load.

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18. The method of claim 17, wherein said first voltage connector and said ground connector are of substantially the same length.

19. The method of claim 17, further comprising receiving a digital input/output connection from the computing device through an input/output connector.

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20. The method of claim 17, further comprising receiving a second voltage from the computing device through a second voltage connector of the module.

10 21. The method of claim 20, wherein one of said first voltage and said second voltage is Vcc.

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